CSIS-4495-050

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**Applied research**

Project Proposal

Project Name: AI Nutritionist chatbot

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# Introduction

Happy nutrition provides consultations to improve gut health, digestion, hormone balance, and stress management through personalized diet, targeted supplementation, and transformative lifestyle changes. The main website, [www.happynutrition.ca](http://www.happynutrition.ca), is currently used for advertising and selling supplements.

There are 2 websites under development. An online learning platform, [www.healthacademy.ca](http://www.healthacademy.ca), is published and it will be promoted to public soon. However, the client wants changes on the website by improving performance, fixing some bugs, making user-friendly, and more importantly adding AI chatbot that allows users to have informative conversations regarding the course materials and nutrition advice.

There is another web app named AskNutritionist.ai which is not published yet. The amount of work to be done is still unclear to the clint as the work of building the site is still in progress.

# Problem statement

**Limited Reach:** Our nutritionist can help limited number of clients through personal consultation. To reach more users, it is imperative to use personalized AI-chatbot. Even though there are number of AI platforms, like ChatGPT, Copilot etc. it will not be able to provide relevant information regarding the course materials that our client provides through students’ nutrition courses.

**Privacy:** With the use of AI that has personal information, it leads to privacy issues, disclaimers, and rules of the Personal Information Protection and Electronic Documents Act (PIPEDA).

**Performance:** The website is slower than average websites. There are many bottlenecks that slow down the current WordPress website such as heavy plugins, huge CSS and JS, slow hosting, and large media files. Finding the best way to optimize the speed and usability of a WordPress-based health website will be the most challenging aspect of this project.

**Search Visibility:** The primary website is not registered in Google analytics hence it cannot be found in google search engines right now. Furthermore, there is another .com domain with similar name that shows up in the search results, creating a potential confusion about the brand.

# Assumptions and Potential Benefits

* Students will rely on the chatbot to clarify class content and dietary knowledge.
* Website visitors will experience faster navigation and better usability.
* SEO optimization will increase the visibility and traffic to the website.

# Riipen partner

* Happy Nutrition
* <https://www.healthacademy.ca>.
* happynutritionhealth@gmail.com

# Objectives

**AI powered Chatbot:** Develop a personalized AI-powered health chatbot that helps users to find answers on nutrition and course topics.

**Performance optimization:** Speed up the website by investigating and eliminating bottlenecks by analyzing WordPress plug-in. If it is necessary, new front-end service will be developed.

**Usability and SEO:** Ensuring the website more user friendly, SEO optimized, responsive and visually appealing.

**Bug fixes:** Resolving known and newly discovered issues to stabilize the website performance.

# Potential Risks

**Project Delay:**

Since the website has already been launched and will soon go to promotion phase, there is a risk that the early users may not be satisfied with the web application, which could negatively impact adoption and projected timeline for the project. Also tailoring the AI to answer specific questions related to the course materials may require more time than anticipated.

**User Privacy and Safety:**

Interactions with the AI chatbot may contain personal health information, which may create a risk of data breaches or leakage.

**Regulatory Compliance:**

The current website does not enforce user consent for disclaimers or terms, even though a draft disclaimer has already been prepared. This creates a risk of non-compliance with privacy regulations such as PIPEDA, especially since the AI chatbot may handle sensitive health-related questions. To address this, the system must require users to review and accept the disclaimer and terms of service before using the chatbot.

# Technologies

* WordPress, OpenAI, Next.js (if migrated)
* Languages/Frameworks: OpenAI prompt, Python (Flask), JavaScript (React/Next.js), PHP (WordPress)
* Database: MySQL (WordPress), MongoDB (Chatbot training data, if needed)
* AI Libraries: TensorFlow/PyTorch, Hugging Face Transformers, LangChain

# Methodologies

By modifying prompts to fit with the specific topics that are covered and pairing them with a customized knowledge base, we are going to use OpenAI's powerful language models. With this strategy, the chatbot will be able to respond with accurate and contextually relevant information. If necessary, we might also create a thin, domain-specific AI model to answer commonly asked questions about the course material and nutrition-related topics.

We will assess the website's usability, navigation, and overall experience from a user's point of view before making any code-level changes. To get input and confirm each small change, weekly meetings with the client will be planned. We expect little disruption to the website's overall structure because the most of the requested changes are minor.

Our preliminary investigation showed that the WordPress template's extensive use of CSS and JavaScript was causing performance problems. We will investigate the impact of switching to a Next.js frontend while keeping WordPress as the backend content management system because removing these components could potentially break certain parts of the design. Performance could be greatly enhanced and the website made more dynamic with this hybrid approach.

We will use caching, image compression, and plugin optimization to speed up load times to improve SEO performance. To increase search engine readability, we will also use best practices like descriptive URLs, structured headings, and clear page titles. Visibility will be further increased by adding meta descriptions and repairing broken links. These actions taken together will result in a platform that is quicker, easier to use, and search engine optimized.

# Expected Results

* A functional chatbot that improves user learning and engagement for subscribed users.
* User-Friendly and fast website. Performance improved by at least 40% (load time < 2s).
* Higher SEO rankings with measurable increase in organic traffic.
* A scalable framework for future enhancements.

# Project Planning and Timeline

## Schedule Estimate:

* AI Chatbot Development: 3-4 weeks
* Website Optimization: 2-3 weeks
* Usability & SEO 1 week
* Final report & presentation 1 week

**A diagram with blue and white squares

AI-generated content may be incorrect.**

Figure : Ghantt Chart

## Work Breakdown:

**Nyamkhuu Enkhbat**

* Chatbot prototyping, fine-tuning, and integration
* Website performance analysis & optimization
* Weekly client meetings and reporting

**Argho Chakma**

* SEO & Analytics setup
* WordPress optimization and bug fixing
* Security and compliance testing
* Research & documentation

**Worklog:**

**Nyamkhuu Enkhbat**

|  |  |  |
| --- | --- | --- |
| Date | Hours | Work Done |
| Test chatbot | 4 | Research how chatbot is developed and test current chatbot by prompting and documenting our test logs. |
| Find out defect | 6 | Based on test results, find out errors, and find out ways to improve. |
| Modify and improve | 8 | Modify open AI, and train it if it is possible |
| Integrate website | 2 | Use the WordPress plugin and connect it |
| Website optimization | 4 | Attend regular meetings and solve the problems |
| Usage & SEO | 8 | Do the research and analysis it |

Figure : Work log of Nyamkhuu

**Argho Chakma**

|  |  |  |
| --- | --- | --- |
| Date | Hours | Work Done |
| AI chatbot | 1 | Attend regular meetings and solve the problems |
| Learn the WordPress | 0 | Waiting for the client to grant access to the WordPress admin console |
| Investigate bottleneck | 2 | Investigated through developers tool in the browser for inconsistencies |
| Modify and improve | 1 | Looked for modification that are essential for the site |
| Test | 1 | Tested the site performance |
| Usage & SEO | 4 | Do the research and analysis it |

Figure : Work log of Argho

# Project Contract

We, all team members, agreed to weekly meetings and work will be logged day we work on the project with hours and clear task descriptions. Nyamkhuu Enkhbat, as a team lead, I am responsible for submission of proposal and reports.

# Acknowledgement

We thank our instructor, peers, and Douglas College resources for their support.